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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,858	10/31/2001	Wen-Ben Chou	LAM2P295	6935

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EXAMINER

CHEN, KIN CHAN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/998,858

Applicant(s)

CHOU ET AL.

Examiner

Kin-Chan Chen

Art Unit

1765

--Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 11 December 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see attached sheets.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

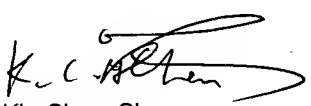
Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: _____

Claim(s) withdrawn from consideration: _____

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
10. ☐ Other: _____


Kin-Chan Chen
Primary Examiner
Art Unit: 1765

Response to After-Final-Reconsideration-Request

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In fact, it is notoriously well known in the dry etching to use interferometry and non-interferometry (non-IEP) methods for etching endpoint detection. As has been stated in the previous office action, they are common methods for endpoint detection in dry etching process. The examiner cited an example of Chiu who teaches using first plasma etch method and using first detection apparatus (such as interferometry) to partially etch a microelectronic layer and employing second plasma etch employing a second detection apparatus (such as plasma / optical emission spectroscopy, so-called non-IEP) in order to accurately determine the endpoint of plasma etching, measure /control the thickness (abstract, col. 2, lines 44-66; col. 12, lines 23-28). It would have been obvious to one with ordinary skilled in the art to use said two-step etching and endpoint detection of Chiu in the process of Nguyen because it is a well-known method in the art and because it is disclosed by Chiu who teaches that to do so would accurately determine the endpoint of plasma etching, measure /control the thickness. Furthermore, the

examiner cited two examples of Maydan et al. (US 4,618,262) and Gardner et al. (US 5,912,188) as evidences in the record for the commonly used interferometry and non-interferometry (non IEP) methods for etching endpoint detection.

The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner 134 USPQ 343.

Applicant has argued that Nguyen fails to disclose or suggest implementing minimum of two etch processes. In fact, Nguyen clearly discloses that one or more etching processes may be used to etch nitride sidewall spacers (**col. 5, lines 10-16; col. 6, lines 28-30**). It is noted that Nguyen cites, in one example, the process may used only one of the aforementioned steps. However, Nguyen's disclosure is not limited to the exemplified process / process parameters. See *In re Fracalossi*, 681 F.2d 792, 794 n.1, 215 USPQ 569, 570 n.1 (CCPA 1982).

Applicant has argued that Nguyen fails to disclose or suggest using IEP endpoint detection method. In response, as has been stated in the office action, Chiu teaches using first plasma etch method and using first detection apparatus (such as interferometry) to partially etch a microelectronic layer and employing second plasma etch employing a second detection apparatus (such as plasma / optical emission spectroscopy, so-called non-interferometry).

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Merk & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant has argued that Nguyen fails to disclose forming a thin spacer layer substantially uniform through a surface of a substrate and the gate structure, in fact Nguyen teaches forming same, see Fig. 3, sidewall spacers 42.

Applicant has argued that Nguyen does not teaches discontinuing the second etch process when the second etch process has continued for a predetermined period of time. In fact, when each etch process takes place, it **inherently** continues for a predetermined period of time, then stops.

Applicant has argued that Nguyen does not teach performing the two-step etch operation in situ. In fact, Nguyen teach same, see col. 5, lines 15-17.

In light of the comments above, the obviousness rejections are maintained.



KIN-CHAN CHEN
PRIMARY EXAMINER